

PATENT

Cheever *et al.*  
Application No.: 09/493,480  
Page 5

93. (once amended) An isolated nucleic acid encoding a fusion protein comprising a HER-2/neu extracellular domain fused to a HER-2/neu phosphorylation domain, wherein the nucleic acid hybridizes under stringent conditions to the complement of a nucleic acid sequence encoding the amino acid sequence of SEQ ID NO:6, wherein the hybridization reaction is incubated in a solution comprising 5x SSC at a temperature of 50-65°C and washed in a solution comprising 0.2x SSC and 0.1% SDS at a temperature of 65°C, and wherein the protein is capable of producing an immune response in a warm-blooded animal.

94. (once amended) The nucleic acid of claim 93, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:3 linked to an amino acid sequence inclusive of Gln 991 to Val 1256 of SEQ ID NO:2.

95. (once amended) The nucleic acid of claim 93, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:8 linked to an amino acid sequence of SEQ ID NO:4.

96. (once amended) The nucleic acid of claim 93, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:8 linked to the amino acid sequence inclusive of Gln 991 to Val 1256 of SEQ ID NO:2.

97. (once amended) The nucleic acid of claim 93, wherein fusion protein comprises sequences that are linked via an amino acid linker.

98. (once amended) A viral vector comprising a nucleic acid of claim 93.

99. (once amended) A composition comprising the nucleic acid of claim 93, and a physiologically acceptable carrier or diluent.

PATENT

Cheever *et al.*  
Application No.: 09/493,480  
Page 6

100. (once amended) The composition of claim 99, wherein the composition is a vaccine.

101. (once amended) The composition of claim 99, further comprising an immunostimulatory substance.

102. (once amended) The composition of claim 99, wherein the nucleic acid is a DNA molecule.

103. (once amended) An isolated nucleic acid encoding a fusion protein comprising a HER-2/neu extracellular domain fused to a fragment of the HER-2/neu phosphorylation domain, wherein the nucleic acid hybridizes under stringent conditions to the complement of a nucleic acid encoding the amino acid sequence of SEQ ID NO:7, wherein the hybridization reaction is incubated in a solution comprising 5x SSC at a temperature of 50-65°C and washed in a solution comprising 0.2x SSC and 0.1% SDS at a temperature of 65°C, and wherein the protein is capable of producing an immune response in a warm-blooded animal.

104. (once amended) The nucleic acid of claim 103, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:3 linked to the amino acid sequence inclusive of Gln 991 to Arg 1049 of SEQ ID NO:2.

105. (once amended) The nucleic acid of claim 103, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:8 linked to an amino acid sequence of SEQ ID NO:5.

106. (once amended) The nucleic acid of claim 103, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:8 linked to the amino acid sequence inclusive of Gln 991 to Arg 1049 of SEQ ID NO:2.

PATENT

Cheever *et al.*  
Application No.: 09/493,480  
Page 7

107. (once amended) The nucleic acid of claim 103, wherein fusion protein comprises sequences that are linked via an amino acid linker.
108. (once amended) A viral vector comprising a nucleic acid of claim 103.
109. (once amended) A composition comprising the nucleic acid of claim 103, and a physiologically acceptable carrier or diluent.
110. (once amended) The composition of claim 109, wherein the composition is a vaccine.
111. (once amended) The composition of claim 109, further comprising an immunostimulatory substance.
112. (once amended) The composition of claim 109, wherein the nucleic acid is a DNA molecule.
113. (once amended) A method of making a fusion protein, the method comprising the steps of:
- (a) introducing into a cell an expression vector comprising a nucleic acid according to claims 93 or 103;
  - (b) culturing the transfected cell; and
  - (c) purifying the expressed fusion protein.
116. (once amended) The method of claim 113, wherein the expressed fusion protein is purified by a two-step procedure, the procedure comprising:
- (a) anion exchange chromatography; and
  - (b) hydrophobic chromatography.

PATENT

Cheever *et al.*  
Application No.: 09/493,480  
Page 8

117. (new) The nucleic acid of claim 93, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:3 linked to an amino acid sequence of SEQ ID NO:4.

118. (new) The nucleic acid of claim 93, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:3 linked to an amino acid sequence of SEQ ID NO:5.

119. (new) The nucleic acid of claim 93, wherein the nucleic acid encodes an amino acid sequence of SEQ ID NO:6.

120. (new) The nucleic acid of claim 93, wherein the nucleic acid encodes an amino acid sequence of SEQ ID NO:7.

121. (new) The nucleic acid of claim 93, wherein the nucleic acid encodes a secreted fusion protein.

122. (new) The nucleic acid of claim 103, wherein the nucleic acid encodes a fusion protein comprising an amino acid sequence of SEQ ID NO:3 linked to an amino acid sequence of SEQ ID NO:5.

123. (new) The nucleic acid of claim 103, wherein the nucleic acid encodes an amino acid sequence of SEQ ID NO:7.

124. (new) The nucleic acid of claim 103, wherein the nucleic acid encodes a secreted fusion protein.